

Inflectional periphrasis as collocation

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Introduction

- Inflectional periphrases: multi-word constructions integrated in an inflectional paradigm.
- Inflectional periphrases are not the result of free syntactic combinations, but rather realize cells in the inflectional paradigms of lexemes.
 - ☞ Vincent and Börjars 1996, Börjars, Vincent, and Chapman 1997, Ackerman and Webelhuth 1998, Spencer 2001, Blevins 2001, 2007 (ms), Stump 2002, Sadler and Spencer 2001, Spencer 2003, Ackerman and Stump 2004, Stump 2006, Bonami and Samvelian 2009, Bonami and Webelhuth (in press)
- Our claim: None of these proposals is compatible with all the desirable design properties of a theory of periphrasis as inflection.
- **New proposal to solve this problem: periphrastic predicates as collocations.**

Design properties of a theory of periphrasis

Periphrasis is independent of phrase structure

The parts of a periphrase can stand in varying phrase-structural configurations (Bonami & Webelhuth, in press):

- (1) a. dass das Buch jemand [vc gekauft hat]
 CPZR the book nobody buy.PST.PCPL have.PRS.3SG
 ‘that nobody bought the book’ (German)
- b. Paul [vP vient de [vP lire ce livre]].
 Paul come.PRS[3SG] of read.INF that book
 ‘Paul just read that book.’ (French)
- c. [s Maryam dâšt [s madrase mi-raft]].
 Maryam have.PST[3SG] school IPFV-go.PST[3SG]
 ‘Maryam was going to school.’ (Persian)
- d. [s Njama-še [CP da mu ga napratja]].
 have.NEG-IPFV CPZR to.him it send.PRS.1SG
 ‘I shan’t send it to him.’ (Bulgarian)

Grammatical relations between parts of a periphrase

- The parts of a periphrase stand in a syntactic head-argument or head-modifier relationship.
- (2) a. John **has** [VP **left** the room].
 b. [AP **more important**]
- Syntactic operations can affect parts of a periphrase, as long as they do not disrupt the grammatical relations.
- (3) Subject-auxiliary inversion
 a. **Has** John [VP **left** the room]?
 b. May John [VP **leave** the room]?
- (4) Topicalization
 a. [VP **Left** the room] [S I believe [S he **has** ___]].
 b. [VP **Leave** the room] [S I believe [S he may ___]].

Auxiliaries have normal paradigms

- Many attempts to treat periphrases as ordinary syntax.
- Normally leads to systematic overgeneration.

		PERFECTIVE	IMPERFECTIVE	PERFECT
PRESENT		***	mi-xar-ad	xarid-e-ast
PAST	DIR.	xarid	mi-xarid	xarid-e bud
	IND.	xarid-e-ast	mi-xarid-e-ast	xarid-e bud-e-ast
SUBJUNCTIVE		be-xar-ad		xarid-e bâš-ad

Distribution of the Persian perfect periphrase (Bonami & Samvelian, 2009)

- Two possible ways out:
 - Assume some kind of competition between morphology and syntax (e.g. Poser 1992, Bresnan 2001, Kiparsky 2005)
 - ☞ Technically and conceptually problematic
 - Assume that all auxiliaries are deponent (here: [PRF –] forms expressing [PRF +])
 - ☞ Strongly implausible

Arbitration between synthesis and periphrasis follows the logic of Pāṇini's principle

- Czech verbs (J. Strnadová, p. c.)

	SG	PL
1	peču	pečeme
2	pečes	pečete
3	peče	pečou

Present of the verb PÉCT 'to bake'

	SG			PL		
	M	F	N	M	F	N
1	pekl jsem	pekla jsem	peklo jsem	pekli jsme	pekly jsme	pekla jsme
2	pekl jsi	pekla jsi	peklo jsi	pekli jste	pekly jste	pekla jste
3	pekl	pekla	peklo	pekli	pekly	pekla

Past of the verb PÉCT 'to bake'

- ☞ Favors a view where arbitration between synthesis and periphrasis happens within the inflectional system.

Word and Paradigm morphology, phrase-structure based syntax

- Inflectional systems are best described in word-and-paradigm approaches.
 - ☞ See among many others Hockett 1954, Robins 1959, Matthews 1972, Anderson 1992, Zwicky 1992, Aronoff 1994, Stump 2001, Blevins 2006
- Syntactic systems are best described in phrase-structural terms, as incrementally built combinations of signs.
 - ☞ See among many others Harman 1963, Bresnan 1978, Gazdar, Klein, Pullum & Sag 1985, Pollard & Sag 1987, 1994, Steedman 1996
- ☞ In Stump's (2001) terms, inflection is inferential-realizational, syntax is lexical-incremental.
- An adequate theory of periphrasis should be compatible with such a position.

How do current theories fare?

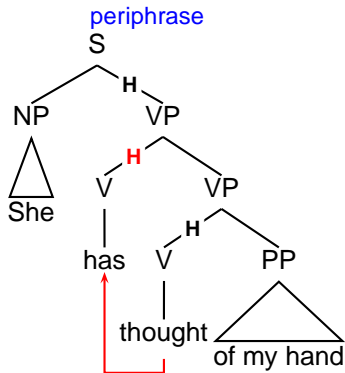
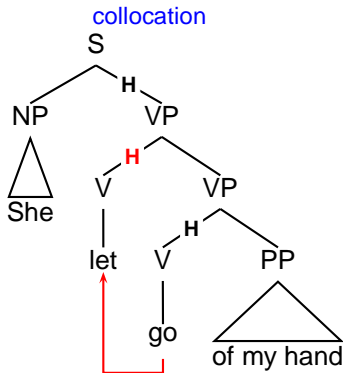
Periphrasis as syntactic exponence: shortcomings of previous approaches

- [Ackerman and Webelhuth 1998](#): syntax of periphrasis is too inflexible to handle extraction or modification.
- [Sadler and Spencer 2001](#), [Ackerman and Stump 2004](#): opposite problem: syntax too unconstrained or details not worked out.
- [Bonami and Samvelian 2009](#): the morphological component fails to be completely realizational.
- [Bonami and Webelhuth \(in press\)](#): Panini's Principle does not apply within the morphology, can't deal with periphrases that rest on the modifier-head relation.

An alternative: periphrases as collocations

The intuition

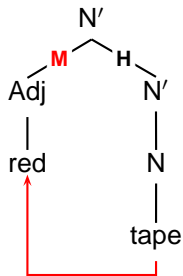
- The main element of a periphrase requires the presence of a selector in the same local environment.
- This is reminiscent of the mutual cooccurrence requirements we find in collocations.



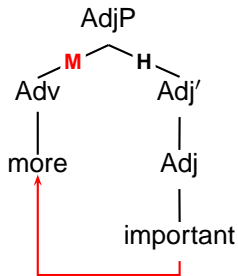
The intuition

- The same goes for modification structures.

collocation

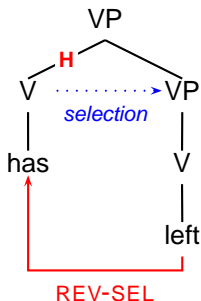


periphrase



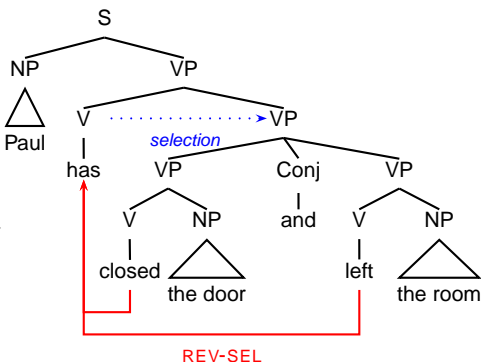
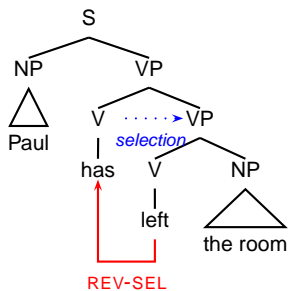
Implementing the intuition

- Prior work on collocations in HPSG: Sailer 2000, Soehn & Sailer 2003, Soehn 2006, Richter & Sailer 2009.
- We adopt an analysis in the spirit of Soehn & Sailer 2003, but with important modifications.
 - Words can carry a REVERSE-SELECTION requirement.
 - This amounts to asking for a selector to be present.
 - The distance between selector and selectee can be as long as the grammar allows independently for that kind of selection relation.
- Inflection rules may produce REV-SEL requirements.



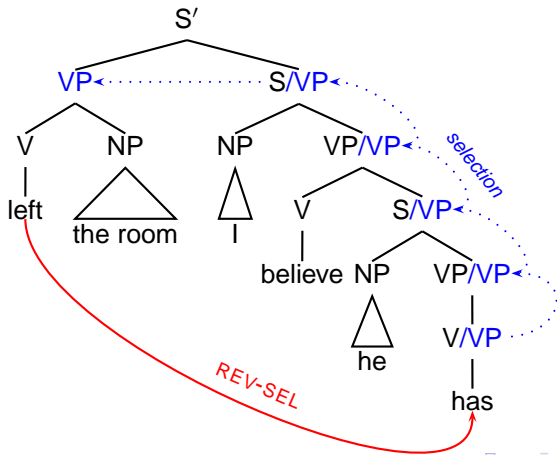
The Reverse Selection Principle

- If a word carries a REV-SEL requirement, then it (or one of its projections) should be selected by a word whose morphological description unifies with that requirement.

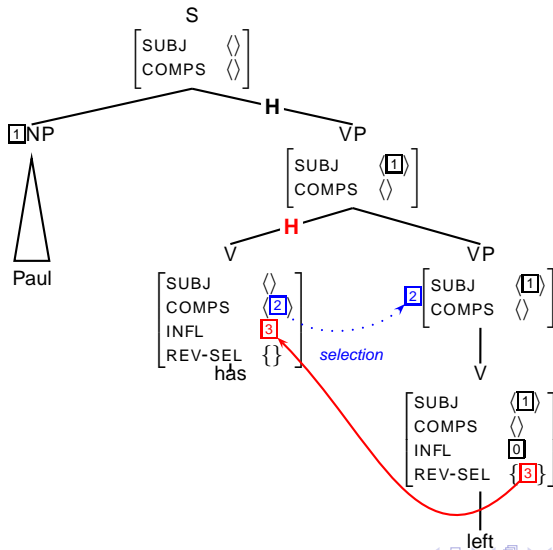


The Reverse Selection Principle (continued)

- Since we rely on the HPSG theory of selection, extraction of parts of periphrases is predicted to be possible without any further stipulations.



The analysis: the syntactic part



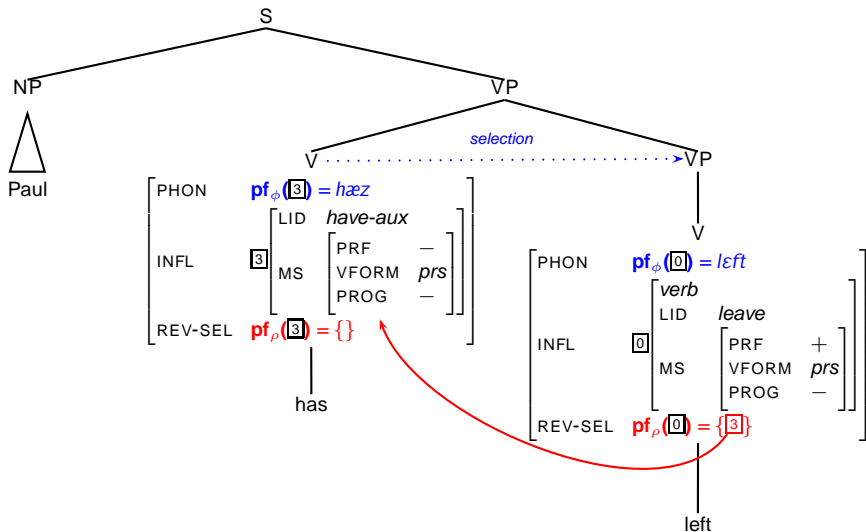
The analysis: the morphological part

- We embed a version of Paradigm Function Morphology (Stump, 2001) as a morphological component of our HPSG grammar.
- Realization rules may:
 - modify the **phonological representation** of their input
 - add **reverse selectional requirements** on the syntactic context.

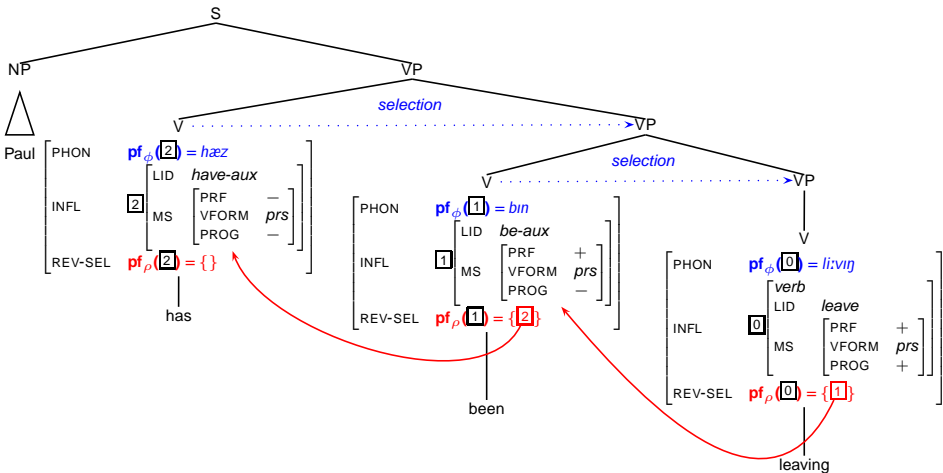
$$\begin{array}{c}
 \left[\begin{array}{cc} \text{PHON} & X \\ \text{REV-SEL} & \{\} \end{array} \right], \sigma : \left[\begin{array}{cc} \text{VFORM} & \textit{pst-ptcp} \\ \text{PRF} & - \end{array} \right] \longrightarrow \left[\begin{array}{cc} \text{PHON} & \textit{Xed} \\ \text{REV-SEL} & \{\} \end{array} \right] \\
 \\
 \left[\begin{array}{cc} \text{PHON} & X \\ \text{REV-SEL} & \{\} \end{array} \right], \sigma : \left[\text{PRF} \ + \right] \longrightarrow \left[\begin{array}{c} \text{PHON} \quad \textit{refer} \left(X, \sigma! \left[\begin{array}{cc} \text{VFORM} & \textit{pst-ptcp} \\ \text{PRF} & - \end{array} \right] \right) \\ \text{REV-SEL} \quad \left\{ \left[\begin{array}{cc} \text{LID} & \textit{have-aux} \\ \text{MORSYN} & \sigma! \left[\text{PRF} \ - \right] \end{array} \right] \right\} \end{array} \right]
 \end{array}$$

☞ left in has left is not a past participle, but a present perfect whose phonology is referred to that of a past participle.

The analysis: putting it all together



Stacking periphrases



Stacking periphrases: the details

- The rule for perfect should not be applicable to progressive forms, so that we can prevent *is having left.

$$\left[\begin{array}{cc} \text{PHON} & X \\ \text{REV-SEL} & \{ \} \end{array} \right], \sigma : \left[\begin{array}{cc} \text{PRF} & + \\ \text{PROG} & - \end{array} \right] \rightarrow \left[\begin{array}{cc} \text{PHON} & \text{refer} \left(X, \sigma! \left[\begin{array}{cc} \text{VFORM} & \textit{pst-ptcp} \\ \text{PRF} & - \end{array} \right] \right) \\ \text{REV-SEL} & \left\{ \left[\begin{array}{cc} \text{LID} & \textit{have-aux} \\ \text{MORSYN} & \sigma! \left[\text{PRF} \quad - \right] \end{array} \right] \right\} \end{array} \right]$$

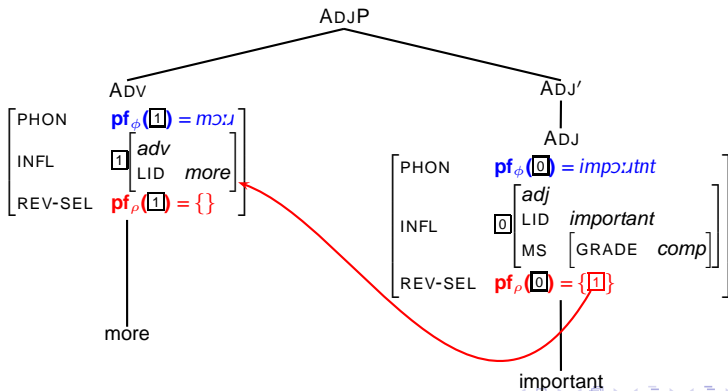
- Compare:

$$\left[\begin{array}{cc} \text{PHON} & X \\ \text{REV-SEL} & \{ \} \end{array} \right], \sigma : \left[\begin{array}{cc} \text{PROG} & + \end{array} \right] \rightarrow \left[\begin{array}{cc} \text{PHON} & \text{refer} \left(X, \sigma! \left[\begin{array}{cc} \text{VFORM} & \textit{prs-ptcp} \\ \text{PROG} & - \end{array} \right] \right) \\ \text{REV-SEL} & \left\{ \left[\begin{array}{cc} \text{LID} & \textit{be-aux} \\ \text{MORSYN} & \sigma! \left[\text{PROG} \quad - \right] \end{array} \right] \right\} \end{array} \right]$$

Periphrasis by modification

$$\begin{bmatrix} \text{PHON} & X \\ \text{REV-SEL} & \{\} \\ \text{ICLASS} & A \end{bmatrix}, \sigma : [\text{GRADE} \text{ comp}] \rightarrow \begin{bmatrix} \text{PHON} & Xer \\ \text{REV-SEL} & \{\} \end{bmatrix}$$

$$\begin{bmatrix} \text{PHON} & X \\ \text{REV-SEL} & \{\} \end{bmatrix}, \sigma : [\text{GRADE} \text{ comp}] \rightarrow \begin{bmatrix} \text{PHON} & X \\ \text{REV-SEL} & \{\text{LID more}\} \end{bmatrix}$$



Conclusions

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Inflectional periphrases

- are not the result of free syntactic combinations.
- Rather: they realize cells in the inflectional paradigms of lexemes.
- None of the previous proposals is compatible with all the desirable design properties of a theory of periphrasis as inflection.
- **New proposal to solve this problem: periphrastic predicates as collocations.**

Conclusions

● Syntax:

- Words can carry a REVERSE-SELECTION requirement.
- This amounts to asking for a specific selector to be present in the local environment of the word.
- The distance between selector and selectee can be as long as the grammar allows independently for the selection relation involved.

● Morphology:

- The paradigm function may produce
 - phonological effects, and in addition
 - REV-SEL requirements.

The theory captures the major desiderata for a theory of periphrasis as inflection:

- The two or more exponents can stand in various syntactic relationships.
- The degree of locality of these relationships is independent of periphrasis.
- Gaps in the paradigms of auxiliaries follow from paradigm structure.
- The morphological component is realizational rather than incremental.
- Arbitration between synthesis and periphrasis is decided within the morphological component.